

1 WHAT IS CLAIMED IS:

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3 1. A Fischer-Tropsch derived fuel composition characterized by a boiling
4 range distribution when measured by ASTM D2887 or its equivalent
5 wherein the 5 weight percent point is at a temperature of
6 570 degrees F or less and the 95 weight percent point is at or above a
7 temperature of 680 degrees F; a kinematic viscosity at 40 degrees C of
8 less than 5.5 cSt; and a cloud point of less than -18 degrees C.

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10 2. The fuel composition of claim 1 wherein the temperature of the
11 5 weight percent point of the boiling range distribution is above about
12 250 degrees F.

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14 3. The fuel composition of claim 2 wherein the temperature of the
15 5 weight percent of the boiling range distribution is above about
16 300 degrees F.

17

18 4. The fuel composition of claim 3 wherein the temperature of the
19 5 weight percent of the boiling range distribution is above about
20 350 degrees F.

21

22 5. The fuel composition of claim 1 wherein the temperature of the
23 95 weight percent point of the boiling range distribution is above about
24 730 degrees F.

25

26 6. The fuel composition of claim 5 wherein the temperature of the
27 95 weight percent point of the boiling range distribution is above about
28 850 degrees F.

29

30 7. The fuel composition of claim 1 wherein the viscosity is less than about
31 4.1 cSt at 40 degrees C.

- 1 8. The fuel composition of claim 1 wherein the cloud point is less than
2 about -25 degrees C.
3
- 4 9. The fuel composition of claim 8 wherein the cloud point is less than
5 about -30 degrees C.
6
- 7 10. The fuel composition of claim 1 wherein no more than
8 30 weight percent of the fuel boils between 500 degrees F and
9 600 degrees F.
10
- 11 11. The fuel composition of claim 10 wherein no more than
12 25 weight percent of the fuel boils between 500 degrees F and
13 600 degrees F.
14
- 15 12. The fuel composition of claim 11 wherein no more than
16 20 weight percent of the fuel boils between 500 degrees F and
17 600 degrees F.
18
- 19 13. The fuel composition of claim 12 wherein no more than
20 15 weight percent of the fuel boils between 500 degrees F and
21 600 degrees F.
22
- 23 14. The fuel composition of claim 13 wherein no more than
24 10 weight percent of the fuel boils between 500 degrees F and
25 600 degrees F.
26
- 27 15. The fuel composition of claim 1 wherein the total sulfur content is less
28 than 5 ppm.

- 1 16. The fuel composition of claim 1 characterized as displaying lower
2 toxicity when contacted with a biological system than fuel compositions
3 boiling within the range of conventional diesel.
4
- 5 17. A Fischer-Tropsch derived fuel composition comprising a boiling range
6 distribution when measured by ASTM D2887 wherein the
7 5 weight percent point of the boiling range distribution is within the
8 temperature range of from about 250 degrees F to about
9 570 degrees F and 95 weight percent point of the boiling range
10 distribution is at or above a temperature of about 680 degrees F; a
11 kinematic viscosity at 40 degrees C of less than about 5.5 cSt; a cloud
12 point of less than about -18 degrees C; and wherein no more than
13 30 weight percent of the fuel composition boils between about
14 500 degrees F and about 600 degrees F.
15
- 16 18. The fuel composition of claim 17 wherein no more than
17 25 weight percent of the fuel composition boils between about
18 500 degrees F and about 600 degrees F.
19
- 20 19. The fuel composition of claim 18 wherein no more than
21 20 weight percent of the fuel boils between about 500 degrees F and
22 about 600 degrees F.
23
- 24 20. The fuel composition of claim 19 wherein no more than
25 15 weight percent of the fuel boils between about 500 degrees F and
26 about 600 degrees F.
27
- 28 21. The fuel composition of claim 20 wherein no more than
29 10 weight percent of the fuel boils between about 500 degrees F and
30 about 600 degrees F.

- 1 22. The fuel composition of claim 17 wherein the temperature of the
2 95 weight percent point of the boiling range distribution is above about
3 730 degrees F.
4
- 5 23. The fuel composition of claim 22 wherein the temperature of the
6 95 weight percent point of the boiling range distribution is above about
7 850 degrees F.
8
- 9 24. The fuel composition of claim 17 characterized as displaying lower
10 toxicity when contacted with a biological system than fuel compositions
11 boiling within the range of conventional diesel.
12
- 13 25. A process for preparing a Fischer-Tropsch derived fuel composition
14 suitable for use in a diesel engine which comprises:
15
- 16 (a) recovering a Fischer-Tropsch derived transportation fuel
17 product;
18
- 19 (b) separating the Fischer-Tropsch derived transportation fuel
20 product into at least a high boiling fraction, an intermediate
21 boiling fraction, and a low boiling fraction, wherein the
22 intermediate boiling fraction contains at least 70 weight percent
23 of the hydrocarbons present in the Fischer-Tropsch derived
24 transportation fuel product boiling between about 500 degrees F
25 and about 650 degrees F; and
26
- 27 (c) blending together the high boiling fraction and the low boiling
28 fraction whereby a Fischer-Tropsch derived transportation fuel
29 composition characterized by a bi-modal boiling range
30 distribution is produced that is suitable for use in a diesel
31 engine.
32

- 1 26. The process of claim 25 wherein at least 70 weight percent of the
2 intermediate boiling fraction boils within the range between about
3 400 degrees F and about 650 degrees F.
4
- 5 27. The process of claim 26 wherein at least 90 weight percent of the
6 intermediate boiling fraction boils within the range of from about
7 500 degrees F and about 650 degrees F.
8
- 9 28. The process of claim 25 wherein the 5 weight percent of the low boiling
10 fraction is at a temperature of about 570 degrees F or less when
11 measured by ASTM D2887 or its equivalent.
12
- 13 29. The process of claim 25 wherein the 95 weight percent point of the
14 boiling range distribution for the high boiling fraction is at or above a
15 temperature of about 630 degrees F when measured by ASTM D2887
16 or its equivalent.
17
- 18 30. The process of claim 29 wherein the 95 weight percent point of the
19 boiling range distribution for the high boiling fraction is at or above a
20 temperature of about 680 degrees F when measured by ASTM D2887
21 or its equivalent.
22
- 23 31. A Fischer-Tropsch derived fuel composition characterized by a boiling
24 range distribution when measured by ASTM D2887 or its equivalent
25 wherein the 5 weight percent point is at a temperature of
26 570 degrees F or less and the 95 weight percent point is at or above a
27 temperature of 630 degrees F; a kinematic viscosity at 40 degrees C of
28 less than 5.5 cSt; a cloud point of less than -18 degrees C; and by
29 displaying a lower toxicity when contacted with a biological system than
30 conventional diesel fuel.

- 1 32. The fuel composition of claim 31 wherein the temperature of the
2 95 weight percent point of the boiling range distribution is above about
3 680 degrees F.
4
- 5 33. The fuel composition of claim 32 wherein the temperature of the
6 95 weight percent point of the boiling range distribution is above about
7 730 degrees F.
8
- 9 34. The fuel composition of claim 33 wherein the temperature of the
10 95 weight percent point of the boiling range distribution is above about
11 850 degrees F.
12
- 13 35. A Fischer-Tropsch derived fuel composition characterized by a boiling
14 range distribution when measured by ASTM D2887 or its equivalent
15 wherein the 5 weight percent point is at a temperature of
16 570 degrees F or less and the 95 weight percent point is at or above a
17 temperature of 630 degrees F; a bi-modal boiling range distribution
18 wherein less than 30 weight percent of the fuel boils between
19 400 degrees F and 650 degrees F; a kinematic viscosity at
20 40 degrees C of less than 5.5 cSt; and a cloud point of less than
21 -18 degrees C.
22
- 23 36. The fuel composition of claim 35 wherein the temperature of the
24 95 weight percent point of the boiling range distribution is above about
25 680 degrees F.
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- 27 37. The fuel composition of claim 36 wherein the temperature of the
28 95 weight percent point of the boiling range distribution is above about
29 730 degrees F.
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- 31 38. The fuel composition of claim 37 wherein the temperature of the
32 95 weight percent point of the boiling range distribution is above about
33 850 degrees F.